Ultrasonic Flow Meter PCE-TDS 100H+ incl. Thermometer

Ultrasonic flow meter PCE-TDS 100H+ incl. Temperature data logger
according to the transit time difference method / For determining flow velocity and flow / Measurement method for liquids that are as homogeneous as possible

This is a portable handheld clamp-on ultrasonic flow meter used for non-invasive, unobstructed and highly accurate measurements of the flow velocity of liquids in metal, plastic and rubber pipes and tubes with a diameter of 57 ... 720 mm / approx. 2 ... 28 in. Ideal for use in oil and gas, water and wastewater, chemical, food and beverage, pharmaceutical, metals and mining, pulp and paper, power and heating, ventilation, air conditioning and refrigeration (HVACR) industries, this ultrasonic flow meter features user-friendly velcro-strap clamps that allow for quick and easy repositioning of the electroacoustic transducers.

Measurable liquids include: acetate, acetone, alcohol, ammonia, aniline, benzene, butyrate, chloroform, ethanol, ethyl alcohol, ethyl ether, ethylene glycol, freon R 12, petrol, glycerin, glycol, isobutanol, isobutane, isopentane, kerosene, linseed oil, methanol, methyl alcohol, engine oil, diesel oil, olive oil, peanut oil, paraffin oil, pentane, petroleum, 1-propanol, coolant, lubricating oil, silicone oil, transformer oil, trichlorethylene, 1, 1, 1 - trichloroethane, turpentine, distilled water and sea water.

Calculation of flow velocity according to the transit-time principle follows the equation:

$$v = \frac{(T_2 - T_1)}{T_1\, T_2} * \frac{L}{2cos\alpha}$$

v= measured velocity
T1 = run time of the ultrasonic signal in the flow direction
T2 = run time of the ultrasonic signal against the flow direction
L = length of the ultrasonic wave
α = ultrasonic signal angle to the flow

The transit-time principle requires pipes to be full and have no bubbles and no particles.

Each meter is assembled and calibrated by PCE Instruments in Germany. Therefore, a factory calibration certificate is provided by PCE Germany in the delivery contents of the meter. The certificate includes one measuring point on two different pipes. The reference display of the in-house test stand used by PCE for calibration has a valid DAkkS calibration certificate. This ensures traceability to the Physikalisch-Technische Bundesanstal (PTB) German national standard. Please note that because the meter's measured values depend upon the pipe geometry, material and coating; the medium type, temperature and speed; and the sensor type and measuring method, these parameters are listed on the supplied certificate for maximum traceability.

- ideal for retrofitting
- installation without process interruption
- easy assembly
- accurate and reliable
- no pressure loss
- maintenance-free, no moving parts
- wear-free
- portable devices for control measurements

Specifications

Technical Data Ultrasonic Flow Meter PCE-TDS 100

Handheld measuring range	-32 ... +32 m/s
Resolution	0.0001 m/s
Accuracy for DN ≥ 50 mm: for DN < 50 mm:	±1.5 % of measured value ±3.5 % of measured value
Reproducibility	±1.0 % of measured value
Media	All liquids with an impurity <5% and a flow >0.03 m^3/h
Flow units	Cubic meter [m^3] Liter [l] Gallon (USA) [gal] Imperial gallon (UK) [igl] Million USA gallon [mgl] Cubic foot [cf] Barrel (USA) [bal] Imperial barrel (UK) [ib] Oil barrel [ob]
Time settings	per day [/d] per hour [/h] per minute [/m] and per second [/s]
Data logger	1800 measurements
Interface	USB (for online measurement and reading of the internal memory)
Protection	IP 52
Power supply	3 x AA NiMH rechargeable battery / 2100 mAh (at full charge 12h running time) 100 ... 240 V AC 50/60 Hz
Dimensions	214 x 104 x 40 mm / 8.4 x 4.1 x 1.5"
Weight	450 g / 15 oz
Sensor	**nominal width DN 50 ... 700, 57 ... 720 mm / approx. 2 ... 28"**
Temperature of liquid	-30 ... 160 °C / -22 ... 320 °F
Dimensions	50 x 45 x 45 mm / 1.9 x 1.7 x 1.7"
Weight	260 g / 9oz

Technical data evaluation software

- Units of power W, kW, MW, J/h, kJ/h, MJ/h, Btu/h, kBtu/h, MBtu/h
-Units of energy J, kJ, MJ, Wh, kWh, MWh, Btu, kBtu, MBtu
- Graphical representation of flow, flow temperature, return temperature, heat output and heat quantity
- Tabular representation of flow, flow temperature, return temperature, heat output and heat quantity
- Mobile and stationary measurement mode
- Real-time data logger with unlimited runtime (only limited by PC memory capacity)
- Data export function
- User-guided software operation with step-by-step instructions for device and software configuration

Technical Data Temperature Datalogger PCE-T 330

Measuring range thermocouple **Type K**	-200 ... +1370 °C / -328 ... 2498 °F
Resolution	0.01 °C
Accuracy*	±(0.3 % of rdg. +0.40) °C*

More information

Manual

Manual P1

Video Quick Start

Video

More product info

Similar products

Subject to change

Measuring range thermocouple **Type T**	--200 ... +400 °C / -328 ... 752 °F
Resolution	00.01 °C
Accuracy*	±±(0.3 % of rdg. +0.40) °C*
Measuring range thermocouple **Type J**	--200 ... +1200 °C / -328 ... 2192 °F
Resolution	00.01 °C
Accuracy*	±±(0.3 % of rdg. +0.40) °C*
Measuring rate	2/s
Operating temperature	-10 ... +50 °C / 14 ... 122 °F
Storage temperature	-20 ... +60 °C (without batteries) / -4 ... 140 °F
Power supply	3 x AAA batteries / 1.2 V battery
Battery life	ca. 190 h (without backlight, battery capacity 1200 mAh, ambient temperature 25 °C)
Protection class	IP52 (with protective cover and connected sensor)
Norm/ certification	CE/EMC ROHS